Emergency Locator Transmitter (ELT) Mounting Requirements and Retention Tests

Federal Aviation Administration

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NTSB Safety Recommendation A-10-170

Determine if the ELT mounting requirements and retention tests specified by TSO-C91a and TSO-C126 are adequate to assess retention capabilities in ELT designs.

Based on the results of this determination, revise, as necessary, TSO requirements to ensure proper retention of ELTs during airplane accidents.

FAA Modernization and Reform Act of 2012 Section 347

(1) GENERAL.—Not later than 90 days after the date of enactment of this Act, the Administrator shall determine if the ELT mounting requirements and retention tests specified by Technical Standard Orders C91a and C126 are adequate to assess retention capabilities in ELT designs.

(2) REVISION.—Based on the determination under paragraph (1), the Administrator shall make any necessary revisions to the requirements and retention tests referred to in paragraph (1) to ensure that ELTs are properly retained in the event of an aircraft accident.

FAA Approach

(1) Evaluate the existing TSOs

(2) Take appropriate corrective action

Existing TSO Evaluation

- Review of existing TSO requirements
  - Loads and testing consistent with accepted crash dynamics
  - The standards contained in these TSOs do not adequately address the use of hook and loop fasteners. While these fasteners can meet the TSO requirements for retention forces in laboratory conditions, accident investigations have found these fasteners are not reliable in service.
- Review of accident data
  - NTSB Aircraft Accident Report AAR-11-03
  - NTSB Factual Report – Aviation NTSB ID WPR10FA273
  - Transportation Safety Board of Canada Advisory A11W0151-D1-A2
- Review of existing guidance
  - AC 91-44A, *Operational and Maintenance Practices for Emergency Locator Transmitters and Receivers*
  - RTCA DO-182, *Emergency Locator Transmitter (ELT) Equipment Installation and Performance*
  - NASA Technical Memorandum 81960, *Evaluation of Emergency-Locator- Transmitter Performance in Real and Simulated Crash Tests*

Existing TSO Evaluation (cont)

- Concerns with hook and loop fastener properties
  - Insufficient tension at installation
  - Loss of tension over time
  - Reduced strength and tension due to debris
  - Degradation due to environment

FAA Determination

Hook and loop fasteners are not an acceptable means of compliance to meet the mounting and retention requirements of the current ELT TSOs.

Proposed Corrective Actions

(1) Revise TSO-C126
- Preclude use of hook and loop fasteners

(2) Correct existing designs
- Work with industry
- Withdraw TSO authorizations only as a last resort

(3) Strengthen installation and maintenance manuals
- Work with industry
- Withdraw TSO authorizations only as a last resort

(4) Encourage retrofit
- Currently no plans for an airworthiness directive
- Retrofit will be voluntary, but highly encouraged

Actions Accomplished

- Federal Register Notice outlining FAA's proposed actions
  - Federal Register Notice
  - Public Comment
- Special Airworthiness Information Bulletin (SAIB) HQ-12-32
  - Published May 23, 2012
  - Recommends actions to reduce risk